Defense Information Systems Agency
Department of Defense

Communications in Disasters

DISA/NSE32

Aug 2011

Communications in Wartime Challenges

- **Effective communications is critical to collecting information, managing resources, and control of dynamic situations**
- **Providing absolutely dependable service delivery to warfighters at the tactical edge requires that all communications systems in use are fully integrated and interoperable**
- **DISA is committed to ensuring that warfighters get the assured service delivery at the tactical edge**

What the Warfighter Needs

- Seamless connectivity
- Information availability and security
- Interoperable communications
- End-to-end QoS policy
- Anywhere, anytime, to any device capabilities
- Common Operating Picture (COP)
- Situational awareness
- Chemical, biological, radiological and nuclear detection
- Remotely operated weapons/sensors

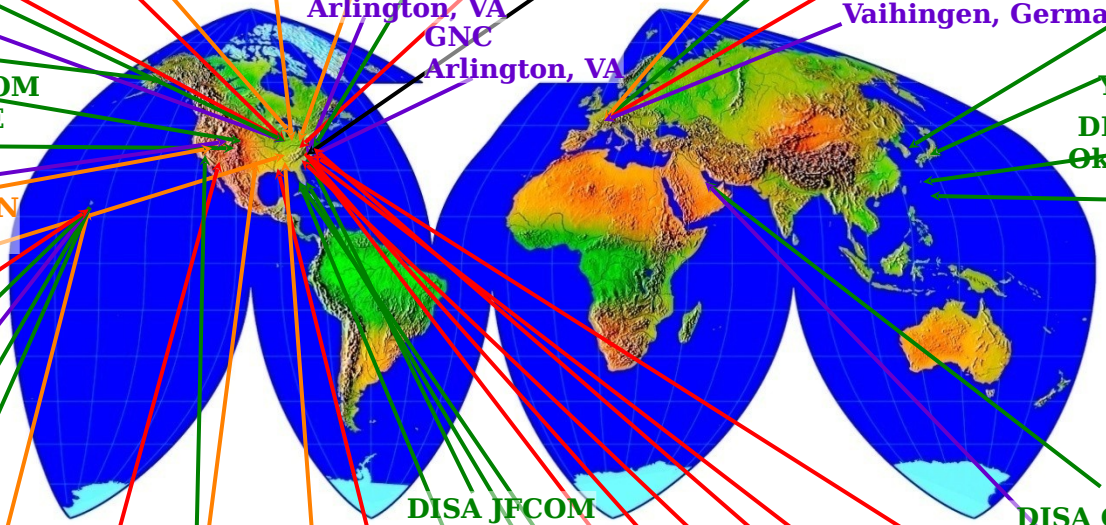
Similar Needs for Disasters

Mission Scenarios

- **Explosion**
  - **Radiation monitoring**
    - **Monitor Integrated Chemical Biological Radiation Nuclear Explosive (iCBRNE) sensor information**
  - **Air quality monitor**
    - **Monitor Wind direction, levels of contamination, concentration of chemical compounds**
  - **Correlating, integrating, and fusing data**
    - **Integrate aerial photography, oblique imagery, persistent surveillance**
  - **Evacuation**
    - **Move citizen to safe location**

Military/disaster environment

DISA's Global Presence



DITCO SCOTT
Scott AFB, IL

DISN SERVICE CENTER
Scott AFB, IL

DECC COLUMBUS
Columbus, OH

DECC COLUMBUS
Columbus, OH

DECC EUROPE
Vaihingen, Germany

DITCO EUROPE
Sembach AFB, Germany

DISA TRANSCOM
Scott AFB, IL

DECC MECHANICSBURG
Mechanicsburg, PA

FSO
Chambersburg, PA

CECOM
Ft. Monmoth, NJ

DISA EUROPE HQ
Stuttgart, Germany

GNSC
Scott AFB, IL

JTF-GNO
Arlington, VA

GNC
Arlington, VA

TNC-EUCOM
Vaihingen, Germany

DISA PACIFIC KOREA
Yongsan AB, South Korea

DISA PACIFIC ALASKA
Elmendorf AFB, AK

DISA STRATCOM
Offutt AFB, NE

DISA PACIFIC JAPAN
Yokota AB, Japan

DISA NORTHCOM
Peterson AFB, CO

DISA PACIFIC OKINAWA
Okinawa, Japan

TNC-NORTHCOM
Peterson AFB, CO

DECC OGDEN
Hill AB, UT

DISA PACIFIC GUAM
Finegayan, Guam

DECC ST. LOUIS
St. Louis, MO

~ Legend ~
Major DISA Activity
NetOps Centers
Field Office
Computing Services

DITCO PACIFIC
Pearl Harbor, HI

DISA JFCOM
Norfolk, VA

DISA CENTCOM
Naval Support Activity, Bahra

DISA PACIFIC HQ
Wheeler AAF, HI

DISA SPAWAR
San Diego, CA

WHCA
Washington, DC

JITC
Indian Head, MD

TNC-CENTCOM
Naval Support Activity, Bahra

TNC-PACOM
Wheeler AAF, HI

DISA SOCOM
MacDill AFB, FL

DISA PACIFIC EMSS
Wahiawa, HI

JITC
Ft. Huachuca, AZ

DITCO NCR
Washington, DC

JSSC
Pentagon, VA

JSC
Annapolis, MD

DISA COOP AND TEST FACILITY
Slidell, LA

DISA CENTCOM
MacDill AFB, FL

DISA PACIFIC
Camp H.M. Smith, HI

DECC OKLAHOMA CITY
Tinker AFB, OK

DMS NATIONAL GATEWAY CENTE
Ft. Detrick, MD

DECC PACIFIC
Pearl Harbor, HI

SMC MONTGOMERY
Maxwell AFB, Gunter Annex, AL

DISA SOUTHCOM
Miami, FL

Communications in Disasters Presents Different Challenges

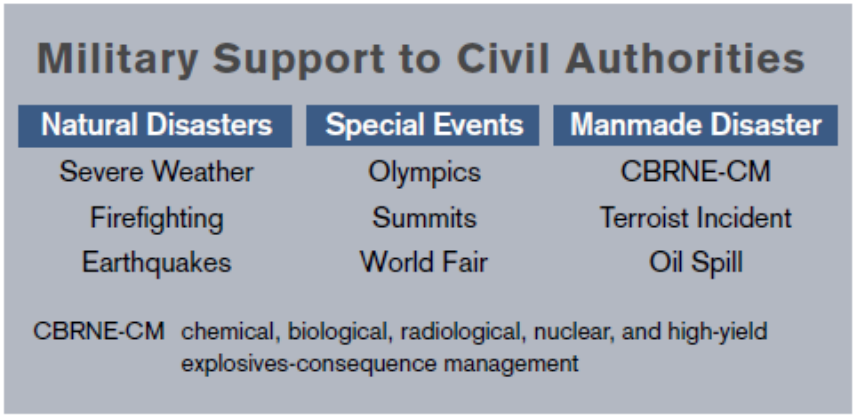
- As complex and challenging as military scenarios can be, disasters normally present a greater communications challenge
  - Increased number of participating heterogeneous entities
    - State agencies
      - Local law enforcement, fire, paramedics
      - National Guard
    - Governor
    - DHS/FEMA
    - DoD

Synergism of Communications Engineering and Implementation

- DISA recognizes that interoperability for disaster relief communications is a superset of wartime communications requirements
- Therefore, by focusing on interoperability and integration of disaster relief communications systems, we are necessarily also solving the communications challenges for the warfighter at the tactical edge, as well as enhancing U.S. national security

Military Assistance to Civil Authorities

- **DISA Campaign Plan:**
  - **Homeland Defense – Identify DISA as a recurring participant in the planning for homeland defense and include contingency operations, humanitarian assistance, and disaster relief to coordinate defense support of civil authorities.**
- **Homeland Security Presidential Directive-5**
  - **The Secretary of Defense shall provide military support to civil authorities for domestic incidents as directed by the President or when consistent with military readiness and appropriate under the circumstances and the law. The Secretary of Defense shall retain command of military forces providing civil support. The Secretary of Defense and the Secretary [of Homeland Security] shall establish appropriate ration and coordination**



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DISA Support of DHS & Others

- **Global transport**
  - **SATCOM & deployable communications capabilities**
    - **Wideband global SATCOM (WGS)**
    - **DoD spectrum**
    - **Fixed, transportable, mobile, airborne terminals**
    - **Teleport**
- **DoD Subject Matter Experts (SME)**
- **DISN services**
  - **NIPRNet, SIPRNet, DVGS, DSN, DRSN, JWICS, Internet, PSTN**
- **Security**
  - **Trusted information exchange environment for information sharing and collaboration**

Communications in Disaster Example: Hurricane Katrina

- DISA collaborated with others (e.g., USNORTHCOM, National Guard) to apply technology to support communications for Hurricane Katrina
- Leveraged upon technology used by DOD in Iraq and elsewhere to provide net-centric comms based upon “Everything over IP” over SATCOM with DOD and commercial teleports to provide voice/data/video services
- DISA provided engineering support to address areas such as DISN interface, QOS, and network management

Way Ahead

- **DISA as a Mobile Network Operator (MNO) & Mobile Virtual Network Operator (MVNO)**
  - **DISA supplies the SIM card, own core network, value added services and delivering**
  - **global, standards based telecommunication services.**
  - **Army Cellular**
  - **Air Force Cellular**
  - **USCENTCOM Cellular**
  - **US Navy Cellular**
  - **USMC Cellular**
  - **NGB Cellular**
- **Address spectrum issues**
  - **Nationwide coverage**
  - **Interoperable with all departments**
  - **Shared nationwide spectrum**
- **Extend the DISN**
  - **Investigate use of air platforms**

Communications in Disasters Approach

- **Perform enterprise architecture, strategic planning technology assessment, acquisition and systems engineering to provide communications which is highly adaptable to unpredictable missions, dynamic user voice/data/video requirements, and heterogeneous/degraded communications media**
  - **Diverse, integrated communications media increases confidence of effective communications**
  - **“Everything Over IP” can be an enabling technology**
- **Collaboration/partnerships with other government organizations and industry**
- **Conduct exercises and demonstrations to identify appropriate technology**
  - **An 80% solution can be more effective than the “someday**

Will the next natural or manmade disaster occur this afternoon?

Partnerships/Collaboration to Achieve Goals

- **Natural or manmade disasters present unique challenges**
  - **Even well thought out plans may not be optimum in a chaotic disaster situations**
- **Collaboration with other government organizations, NGOs, and industry can help identify viable (and not) technology**
- **Interacting with diverse groups (e.g., DOD, public safety, National Guard, etc.) can be especially va**

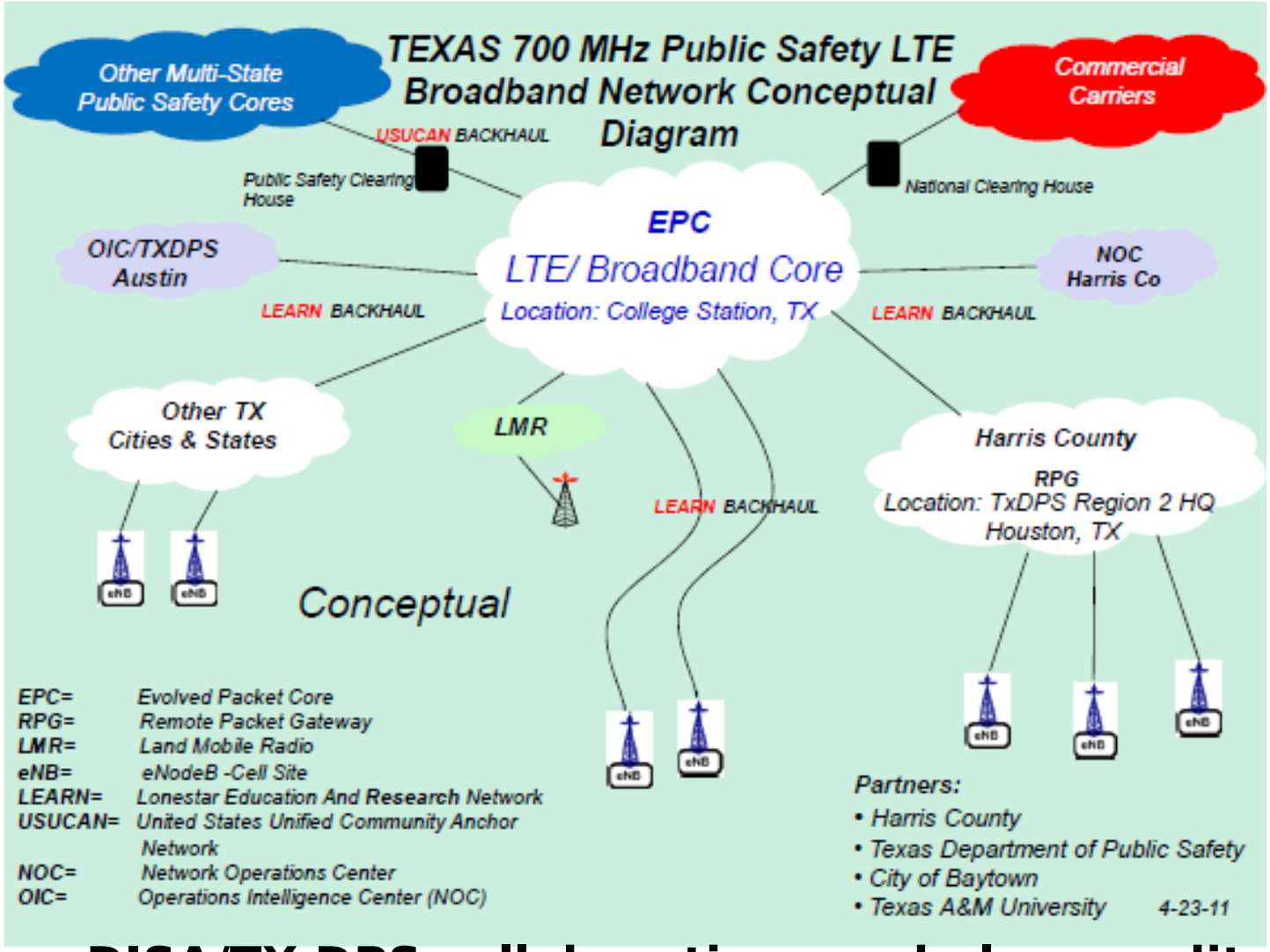
Lets not excessively reinvent the wheel

Example Partner: Texas Dept of Public Safety

- **TX DPS role in state, FEMA region, national plans:**
  - **Texas has an FCC Broadband Waiver to construct a public safety Long-Term Evolution public safety mobile broadband network for Texas agencies**
  - **Component of $10.7B national plan proposed by President to affect the nation's 55,000 public safety agencies, as called-for in 9/11 Commission report**
  - **Texas is partnering with other four FEMA Region VI states on broadband network planning**
- **Broadband Interoperability Gateway LTE network: Texas LTE layer will be connected by gateways into existing Land Mobile Radio (LMR) systems, including federal networks, where authorized**

Example Partner: Texas Dept of Public Safety Configuration

- Overview of TX DPS architecture BIG NET

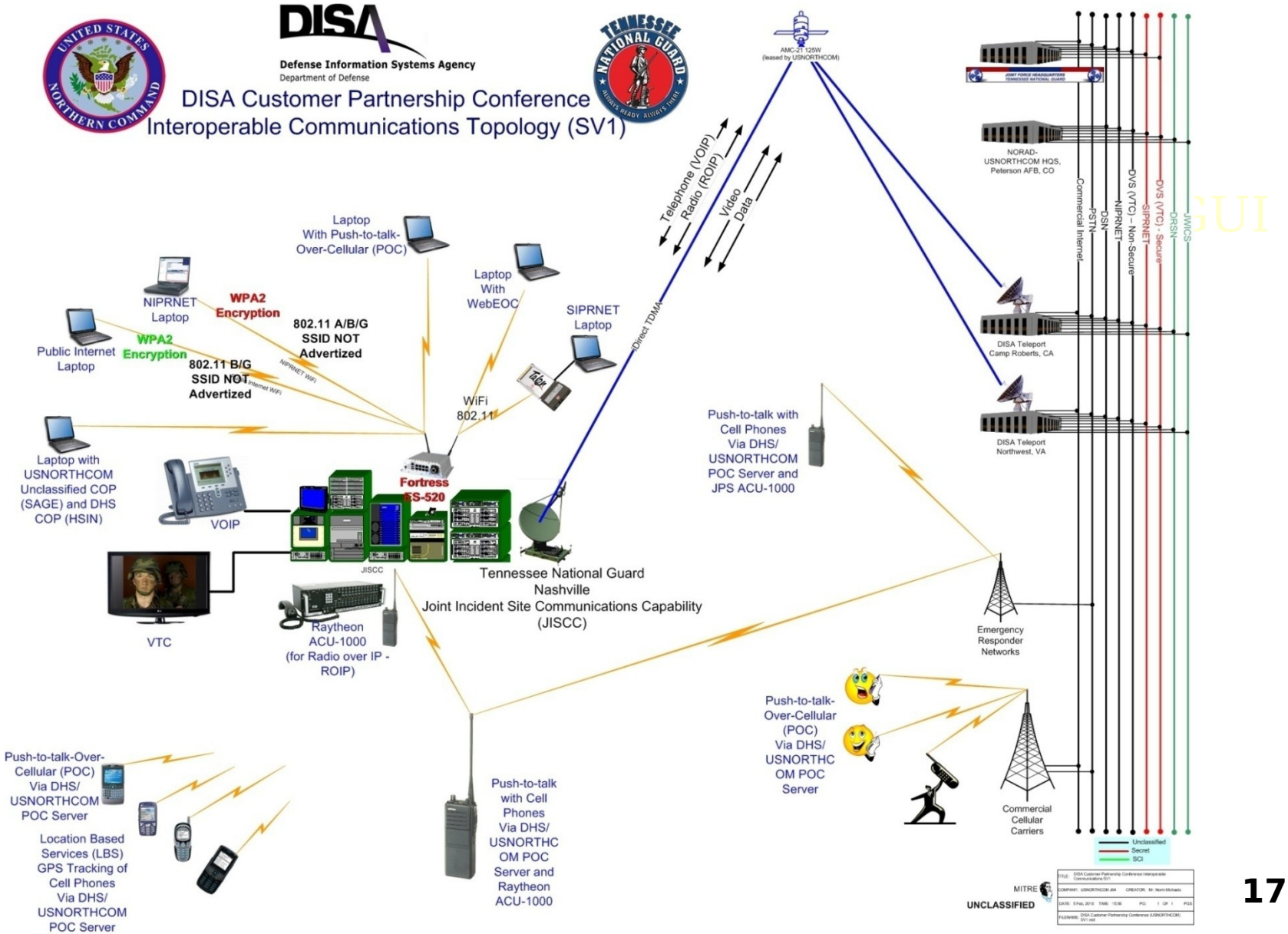


DISA/TX DPS collaboration can help expedite

Example Partner: Naval Postgraduate School

- **NPS Provides Graduate Education to Military and Government Civilians**
  - **Both resident and Distance Learning Programs**
  - **Students complete a technical report (thesis) as part of studies**
- **Faculty Perform Applied and Basic Research**
  - **NPS Military Wireless Communications Research Group focuses on leveraging COTS cellular technologies for dismounted forces**
  - **Quarterly Tactical Networking Topology Experiments provide opportunity to explore emerging technology utility**
- **Faculty can serve as unbiased, third-party analysts**

DISA Example Partner : USNORTHC



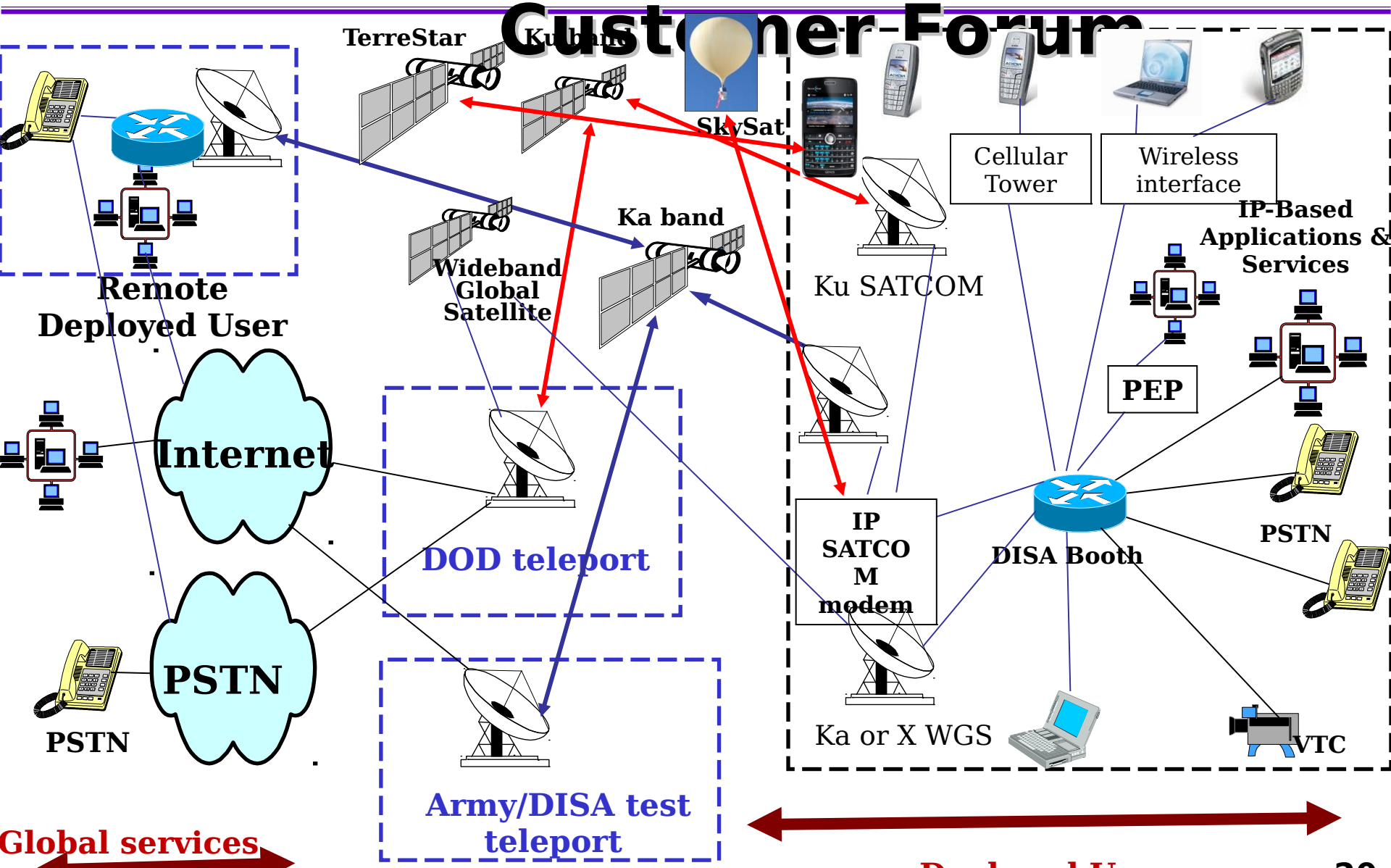
Collaboration Benefits

- Resource sharing
- Coordinate and consolidate projects and lesson learned
- Implementation of shared IT services
- Establishing SLAs
- Make information a force multiplier
- Address gaps & overlaps
- Develop measurable performance metrics
- Establish gateways to interface other Federal, State, local, and tribal entities into the GIG and test these interfaces
- Establish interagency support
- Address issues of multiple networks and databases
- Guaranteed access

Exercises/Demonstrations to Assess Technology

- **Assessment and use, especially by real users, in exercise/demo events can help expedite the operational implementation of appropriate technology for disasters and wartime**
- **Examples of events:**
  - **Coalition Warrior Interoperability Demonstration (CWID)**
  - **DISA Customer and Industry Forum**
  - **Joint User Interoperability Communications Exercise (JUICE)**
  - **LandWarNet**
  - **MILCOM**
  - **Other partner exercises/events**

Demonstration Configuration at DISA Customer Forum



Summary

- **Communications in disasters can be major challenge**
- **Diverse, responsive, multi-media communications technology can provide situational awareness and force direction in chaotic environments**
  - **Integrate COTS and GOTS technology**
- **Collaboration/partnerships to achieve common goals can help expedite implementation of appropriate technology**
  - **Don’t look for 100% solution**
  - **Welcome technology evolution**
- **Conduct assessments/exercise for efficient use of applicable technology in a cost effective manner**

Collaboration to achieve near term goals